

ART 34 ANDT

What is claimed is:

1. A method of inspecting the interior of a tire from a transmission X-ray image of the tire obtained by applying an X-ray to the conveyed tire from X-ray application means, comprising the step of applying the X-ray to at least two positions including the opposite ends of the tires to take transmission X-ray images of the tire.

2. The X-ray tire inspection method according to claim 1, wherein the outer diameter of the conveyed tire is measured and the positions of the X-ray application means are changed according to the measurement result.

3. The X-ray tire inspection method according to claim 2, wherein the X-ray application means are installed a predetermined distance inward from the measurement positions of the outer diameter of the tire.

4. The X-ray tire inspection method according to any one of claims 1 to 3, wherein two out of the transmission X-ray images of the tire are selected, transmission X-ray images of half portions near the X-ray application means of the tire are combined to form a transmission X-ray composite image of the whole tire, and the interior of the tire is inspected from this

5. The X-ray tire inspection method according to claim 1, comprising the steps of:

measuring the outer diameter of the conveyed tire;

installing the X-ray application means at positions 2 to 3 cm inward from the measurement positions of the outer diameter of the tire based on the measurement data on the outer diameter of the tire;

taking transmission X-ray images of the tire with the X-ray application means;

selecting two out of the transmission X-ray images of the tire to combine the transmission X-ray images of half portions near the X-ray application means of the tire so as to form a transmission X-ray composite image of the whole tire; and

inspecting the interior of the tire from the transmission X-ray composite image of the whole tire.

6. An X-ray tire inspection apparatus comprising means of conveying tires, means of applying an X-ray to the conveyed tire and X-ray sensors for taking transmission X-ray images of the tire to inspect the interior of the tire from a transmission X-ray image obtained with the X-ray sensors, wherein

the X-ray application means are installed at positions corresponding to at least two positions of the conveyed tire.

including the opposite ends of the conveyed tire.

7. The X-ray tire inspection apparatus according to claim 6, which further comprises image combining means for selecting two out of the transmission X-ray images of the tire to combine transmission X-ray images of half portions near the X-ray application means of the tire and judging means for judging whether the tire is acceptable or not from a transmission X-ray composite image of the whole tire formed by the image combining means.

8. The X-ray tire inspection apparatus according to claim 6 or 7, which further comprises means of measuring the outer diameter of the conveyed tire and means of moving the X-ray application means to positions a predetermined distance inward from the measurement positions of the outer diameter of the tire.

9. The X-ray tire inspection apparatus according to any one of claims 6 to 8, wherein the X-ray application means are installed at opposite positions right above the inner wall portion of the tread belt.

10. The X-ray tire inspection apparatus according to any one of claims 6 to 9, wherein one of the X-ray application means and an X-ray sensor for taking a

application means are shifted from the other X-ray application means and the other X-ray sensor by a predetermined distance in the tire conveyance distance, respectively.

11. The X-ray tire inspection apparatus according to any one of claims 6 to 10, wherein the X-ray sensors are X-ray line sensors and the X-ray application means are provided with a shielding plate having a slit extending in the internal direction of the tire from the center portion and parallel to the extending direction of the X-ray line sensor.

12. The X-ray tire inspection apparatus according to any one of claims 6 to 11, wherein the X-ray application means are installed at a height where their X-ray application ranges include at least the whole tire.

13. The X-ray tire inspection apparatus according to any one of claims 6 to 12, wherein the interval between the two X-ray application means can be changed.